

REMARKS

The Office Action dated March 14, 2008, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

By this Response, claim 1 has been amended to more particularly point out and distinctly claim the subject matter of the present invention. No new matter has been added. Accordingly, claims 1-8 are currently pending, of which claims 1 and 6 are independent claims.

In view of the above amendments and the following remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending rejections to the claims for the reasons discussed below.

Claim Rejections under 35 U.S.C. §102(b)

The Office Action rejected claims 1 and 3-8 under 35 U.S.C. §102(b) as being allegedly anticipated by Bulgrin (U.S. Patent No. 5,456,870) (“Bulgrin”). The Office alleged that Bulgrin discloses or suggests every feature recited in claims 1 and 3-8. Applicants respectfully submit that the claims recite subject matter that is neither disclosed nor suggested in Bulgrin.

Claim 1, upon which claims 2-5 depend, recites an injection molding machine. The injection molding machine includes a cylinder member, an injection member disposed in the cylinder member such that the injection member can advance and retreat.

The injection molding machine also includes a plurality of heaters disposed on the outer circumference of the cylinder member, and temperature detection sections disposed on the cylinder member at a plurality of positions along an axial direction thereof so as to detect temperature. The injection molding machine also includes a recording device which stores a recorded target temperature distribution range indicating an optimal temperature range at each position of the cylinder member, and a control section which adjusts set temperatures of the heaters such that each of the temperatures detected by the temperature detection sections falls within the target temperature distribution range.

Claim 6, upon which claims 7-8 depend, recites an injection molding method. The injection molding method includes detecting a plurality of temperatures of a cylinder member by use of temperature detection sections disposed on the cylinder member at a plurality of positions along an axial direction thereof. The method further includes reading from a recording device a target temperature distribution range indicating an optimal temperature range at each position of the cylinder member, and adjusting set temperatures of a plurality of heaters disposed on the outer circumference of the cylinder member such that each of the temperatures detected by the temperature detection sections falls within the target temperature distribution range.

As will be discussed below, Bulgrin fails to disclose or suggest every feature recited in claims 1 and 3-8, and therefore fails to provide the features discussed above.

Bulgrin is directed to an improved temperature control system using a state controller with two degrees of freedom to regulate the temperature of the barrel of an injection molding machine (Bulgrin, Abstract; col. 3, line 59, to col. 7, line 6).

Applicants respectfully submit that Bulgrin fails to disclose or suggest every feature recited in claim 1, and similarly recited in claim 6. Specifically, Bulgrin fails to disclose or suggest, at least, “a recording device which stores a recorded target temperature distribution range indicating an optimal temperature range at each position of the cylinder member; and a control section for adjusting set temperatures of the heaters such that each of the temperatures detected by the temperature detection sections falls within the target temperature distribution range” (emphasis added).

The Office Action alleged that Bulgrin discloses the aforementioned claim features, citing column 8, line 59, to column 9, line 12, and column 20, lines 18-54 (See Office Action on page 2). In the *Response to Arguments*, the Office Action further alleged that Bulgrin includes a console screen 28 which is connected to the programmable controller. The Office Action further alleged that Figures 1 and 2 clearly show the set point temperatures shown on the console screen. The Office Action concluded that a recording device would have been inherent in the program controller since these set point temperatures are shown with the thermocouple temperatures to show the operating conditions. However, a review of these passages and Figures 1 and 2 demonstrates that Bulgrin fails to disclose or suggest every feature recited in claim 1, and similarly recited in claim 6.

Rather, Bulgrin discloses cylindrical barrel 12 including four heater bands 20a-d and four thermocouples 26a, 26b, 26c and 26d. The four heater bands 20a-d and four thermocouples 26a, 26b, 26c and 26 are positioned at the rear, center, front, and nozzle areas of cylindrical barrel 12. Bulgrin further discloses operator console screen 28 capable of displaying a variety of machine operated pictures or views, one of which, generally illustrated in FIGS. 1 and 2, controls heater bands 20a-d and visually shows *the present temperature sensed by thermocouples 26a-d*. The operator thus dials in a desired temperature, *a set point signal temperature for each heat band 20a-d and this is shown schematically in the drawings by reference numerals 29a, 29b, 29c, and 29d for the set point temperatures*, respectively, of the rear, center, front, and nozzle portions of barrel wall 25. Because operator console screen 28 typically shows the present temperature of thermocouples 26a, 26b, 26c and 26d, the operator has a visual check of the barrel temperature where he can see a thermal run away, breakdown, etc (Bulgrin, col. 8, line 59, to col. 9, line 12).

Hence, Bulgrin merely discloses that both the present temperature sensed by thermocouples 26a-d and the set point temperatures 29a, 29b, 29c, and 29d are *displayed* on the operator console screen 28. Bulgrin fails to disclose or suggest that to *display* either the present temperature sensed by thermocouples 26a-d or the set point temperatures 29a, 29b, 29c, and 29d *requires storing* “a recorded target temperature distribution range indicating an optimal temperature range at each position of the cylinder member” in a recording device, as recited in claim 1, and similarly recited in claim 6. In

other words, although the program controller is capable of *displaying* the aforementioned temperature readings/settings on the operator console screen 28, one of ordinary skill in the art would not have concluded that it would have also been inherently required for the program controller to further include a distinct structural element, e.g. a recording device, which “stores a recorded target temperature distribution range indicating an optimal temperature range at each position of the cylinder member” because Bulgrin merely discloses *displaying* the present temperature sensed by thermocouples 26a-d and the set point temperatures 29a, 29b, 29c, and 29d.

Even if the present temperature sensed by thermocouples 26a-d or the set point temperatures 29a, 29b, 29c, and 29d are stored for display on the operator console screen 28, Bulgrin still fails to disclose or suggest, at least, a distinct “recording device which stores a recorded target temperature distribution range indicating an optimal temperature range at each position of the cylinder member” as recited in claim 1, and similarly recited in claim 6 (emphasis added). Rather, only a single present temperature sensed at a respective thermocouple 26a, 26b, 26c, or 26d, or a single set point temperature 29a, 29b, 29c, or 29d for a respective heat band 20a, 20b, 20c, or 20d is read and displayed on the operator console screen 28.

Accordingly, since the targeted temperature distribution range is not stored in the teachings of Bulgrin, Applicants respectfully submit that Bulgrin fails to disclose or suggest, at least, “a control section for adjusting set temperatures of the heaters such that each of the temperatures detected by the temperature detection sections falls within the

target temperature distribution range” as recited in claim 1, and similarly recited in claim 6 (emphasis added).

Accordingly, Bulgrin fails to disclose or suggest every feature recited in claim 1, and similarly recited in claim 6.

Claims 2-5 depend from claim 1. Claims 7-8 depend from claim 6. Accordingly, claims 2-5 and 7-8 should be allowable for at least their dependency upon an allowable base claim, and for the specific limitations recited therein.

Therefore, Applicants respectfully request withdrawal of the rejections of claims 1-8 under 35 U.S.C. §102(b), and respectfully submits that claims 1 and 6, and the claims that depend therefrom, are in condition for allowance.

Claim Rejections under 35 U.S.C. §103(a)

The Office Action rejected claim 2 under 35 U.S.C. §103(a) as being allegedly unpatentable as obvious over Bulgrin, as applied to claims 1 and 3-8, and further in view of either Hehl (U.S. Patent No. 5,159,957) (“Hehl”) or JP 61-234120 (“JP ‘120”). Applicants respectfully submit that the claims recite subject matter that is neither disclosed nor suggested in any combination of Bulgrin, Hehl or JP ‘120.

Bulgrin was discussed above. Hehl is directed to supply and return passages of an apparatus, each of which also defines a valve passage, which contains a rotary valve for controlling the flow rate in a cooling circuit of an injection molding machine (Hehl, Abstract; col. 1, line 45, to col. 3, line 2).

JP '120 is directed to a temperature control device comprising a first thermocouple provided at a base of a cylinder below a retainer ring to detect a temperature, a temperature control device having the thermocouple as the temperature sensor, a heater controlled by the control device, a second thermocouple inserted into the cylinder below a hopper hole to detect the temperature in the hopper jacket, and a solenoid valve to control the flow rate of cooling water passing through the hopper jacket, whereby the solenoid valve is controlled by the signals from the second thermocouple to control a resin temperature (JP '120, Abstract).

As previously discussed above, Bulgrin fails to disclose or suggest every feature recited in claim 1. Hehl and JP '120, alone or in combination, fail to cure the deficiencies of Bulgrin. Specifically, Hehl and JP 120 each fails to disclose or suggest, at least, "a recording device which stores a recorded target temperature distribution range indicating an optimal temperature range at each position of the cylinder member; and a control section for adjusting set temperatures of the heaters such that each of the temperatures detected by the temperature detection sections falls within the target temperature distribution range" as recited in claim 1.

Accordingly, Bulgrin in view of Hehl, or in view of JP-120, fails to disclose or suggest every feature recited in claim 1.

Claim 2 depends from claim 1. Accordingly, claim 2 should be allowable for at least its dependency upon an allowable base claim, and for the specific limitations recited therein.

Therefore, Applicants respectfully request withdrawal of the rejections of claim 2 under 35 U.S.C. §103(a), and respectfully submits that claim 1, and the claims that depend therefrom, are in condition for allowance.

CONCLUSION

In conclusion, Applicants respectfully submit that Bulgrin fails to disclose or suggest every feature recited in claims 1-8. The distinctions previously noted are more than sufficient to render the claimed invention unanticipated and non-obvious. It is therefore respectfully requested that all of claims 1-8 be allowed, and this present application be passed to issuance.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, Applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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